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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/767,248 | 01/28/2004 | Hieu Van Tran | 2102397-992820 | 4785 |
| 26379 | 7590 | 09/19/2005 | EXAMINER | |
| DLA PIPER RUDNICK GRAY CARY US, LLP 2000 UNIVERSITY AVENUE E. PALO ALTO, CA 94303-2248 | | | NGUYEN, KHA I M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2819 | |

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/767,248 | TRAN ET AL. | |
| | Examiner | Art Unit | |
| | Khai M. Nguyen | 2819 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/19/2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 19 and 24 is/are rejected.
- 7) ☒ Claim(s) 13, 15-18 and 20-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/28/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9, lines 4-5, recites, "...to select the said bias" is unclear which bias the applicants refer it to. Clarification/correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- a. Claims 1-2, 4, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kennedy et al. (US 6,304,141).

Regarding claim 1, Kennedy et al. discloses a multi-operational amplifier (multi because Fig. 1 shows more than one amplifiers 102 & 104) (operational because these amplifiers are differential amplifiers) system (see Figs. 1-3), comprising: a plurality of operational amplifiers (102/104); and a controller (110, 112, 114) to configure the plurality of operational amplifiers to form an adaptive input range of the system (line 55 of column 2 to line 36 of column 3).

Regarding claim 2, Kennedy et al. discloses at least an input of amplifier 102 is coupled to an input of amplifier 104 (see Fig. 1).

Regarding claim 4, Kennedy et al. discloses each operational amplifier (102 or 104) includes a compensation network (112/114), and an output of one of the operational amplifiers (102 or 104) is coupled to an input of a compensation network of at least one other of the operational amplifiers (Fig. 1).

Regarding claim 24, Kennedy et al. discloses a multi-operational amplifier system, comprising: a plurality of operational amplifiers (102/104 – Kennedy et al. uses the same technical term “differential amplifier”); and a configuration circuit (including 110) to configure the plurality of operational amplifiers (102/104), wherein the configuration circuit includes a metallization interconnects (the arrows).

b. Claims 1-3, and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Gingrich et al. (US 5,175,508).

Regarding claim 1, Gingrich et al. discloses a multi-operational amplifier system (the apparatus of Fig. 10 discloses at least 4 operational amplifiers 10 – see column 3, lines 27-28), the system comprising: a plurality of operational amplifiers (10); and a controller (the dashed box includes 56-57) configure the operational amplifiers (10) to form an adaptive input range of the system.

Regarding claim 2, Gingrich et al. discloses a non-inverting input of the first operational amplifier (the top amplifier 10) is electrically coupled to a non-inverting input of the second operational amplifier (10) via resistors 17.

Regarding claim 3, Gingrich et al. discloses each of the amplifiers of the system of claim 1 having a first input, wherein the first input of one of the amplifiers (let say the first or top amplifier 10) being coupled to a first node (the inverting input node), and the first inputs (the non-inverting inputs) of the second and third amplifiers being electrically coupled to a second node (VBIAS node via resistors 17).

Regarding claim 9, Gingrich et al. discloses a multi-operational amplifier system (multi-operational amplifiers because the apparatus of Fig. 10 discloses at least 4 operational amplifiers 10 – see column 3, lines 27-28), the system comprising:

a plurality of operational amplifiers (amplifiers 10 of Fig. 10), one of the operational amplifiers (the top or first amplifier 10, for example) having a fixed bias (a DC bias voltage VBIAS provided to the top or first amplifier via the resistor 17), another of the operational amplifiers (the second amplifier 10) includes an adaptively switchable bias (Gingrich et al. uses the term adjustable or variable bias means for providing selectable bias voltage to the amplifiers input – column 3, lines 48-49 and column 10, lines 15-16); and

a controller (control signal Vc of Fig. 1 or 57 of Fig. 10) to configure the plurality of operational amplifiers and to select the selectable or switchable bias (Fig. 10) by controlling the resistance of the resistor 18.

Regarding claims 10 & 11, Gingrich et al. discloses a multi-operational amplifier system (multi-operational amplifier because the apparatus of Fig. 10 discloses at least 4 operational amplifiers 10 – see column 3, lines 27-28), the system comprising:

a plurality of operational amplifiers (amplifiers 10 of Fig. 10), one of the operational amplifiers (the top or the first amplifier 10, for example) having switchable bias (Gingrich et al. uses the term adjustable or variable bias means for providing selectable bias voltage to the amplifiers input – column 3, lines 48-49 and column 10, lines 15-16), another of the operational amplifiers (the second amplifier 10) includes an adaptively switchable bias (Gingrich et al. uses the term adjustable or variable bias means for providing selectable bias voltage to the amplifiers input – column 3, lines 48-49 and column 10, lines 15-16); and

a controller (control signal V_c of Fig. 1 or 57 of Fig. 10) to configure the plurality of operational amplifiers and to select the selectable or switchable bias (Fig. 10) by controlling the resistance of the resistor 18 in each channel.

Regarding claim 12, Gingrich et al. discloses the system of claim 11, wherein switching or varying the bias of the second amplifier 10 is based on, at least in part, the switchable/selectable bias of the second amplifier 10 (Fig. 10).

c. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Hwang et al. (US 5,604,464). Hwang et al. discloses a multi-operational amplifier system (Figs. 3-4) (multi = more than one stages; operational amplifier = op amp = differential input stages 330 & 340), comprising:

a first operational amplifier (see block 330 of Fig. 3; including transistors 412-414 of Fig. 4; and column 4, lines 13-46) configured as an output transconductance amplifier (it is transconductance amplifier because the operational amplifier 330 of Fig. 3

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capable of receiving a differential input signal 317 of Fig. 3 (column 4, lines 16-19) and capable of outputting a differential signal coupled to the drains of transistors 432-434 of Fig. 4);

a second operational amplifier (see block 340 of Fig. 3; including transistors 432 & 434 of Fig. 4; and column 4, lines 41-46) configured as an output transconductance amplifier (it is transconductance amplifier because the operational amplifier 340 of Fig. 3 capable of receiving a differential input signal provided from the first operational amplifier 330 of Fig. 3 and capable of outputting a differential signal); and

a third operational amplifier (block 370 of Fig. 3) configured as a folded cascode operational amplifier (column 4, lines 27-31).

d. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US 6,181,204). Smith et al. discloses (see Fig. 10) a multi-operational amplifier (multi = more than one stages; and operational amplifier = op amp = differential amplifier – because each amplifier shown in Fig. 10 having a non-inverting, an inverting input, and two outputs) system (see column 1, lines 8-9 – Fig. 10 comprises, for example, at least three amplifiers coupled in parallel), comprising: first (1), second (2), and third (3) operational amplifiers each configured as an output trans-conductance amplifier (column 6, lines 39-51).

e. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Yang et al. (US 6,121,817). Yang et al. discloses (see Fig. 1A and/or Fig. 4) a multi-

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operational amplifier system (multi = more than one stages; and operational amplifier = op amp = differential amplifier – because each amplifier having a non-inverting, an inverting input, and an output), comprising: first (20a or 30a), second (20b or 30b), and third (20c or 30c) operational amplifiers each configured as an output trans-conductance amplifier (column 1, lines 29-43 and/or column 4, lines 27-43).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sevic et al. (US 6,069,525) in view of Tran (US 5,631,606). Sevic et al. discloses (Fig. 1 and column 4, lines 5-10) a multi-operational amplifier system (Fig. 1), comprising: a first operational amplifier (104a), and a second operational amplifier (104b), and a third amplifier 104c (see column 4, lines 9-10). Sevic et al. does not show detail structure of the amplifiers (104a-c). However, Sevic et al. teaches that any known transistors (including CMOS, NMOS, PMOS transistors...) can be used to form these amplifiers (see column 3, lines 56-63). The NZ NMOS and N-type NMOS transistors (see [0024] of the application specification for the definition of the transistors) that were used to form the amplifiers of claim 5 are known (see Tran USPN 5,631,606 - abstract). Therefore, it would have been obvious to one person having ordinary skills in the art at the time the

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invention was made to utilize known transistors to form the first/second/third amplifiers (104a-c) of Sevic et al. for the purpose of driving low impedance loads (col. 1, lines 5-8).

Allowable Subject Matter

4. Claims 13, 15-18, and 20-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571-272-1809. The examiner can normally be reached on 9:00 - 5:30 Monday-Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert (Bob) J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 8, 2005

Khai M. Nguyen
Art Unit: 2819

Voice: 571-272-1809


PEGUY JEANPIERRE
PRIMARY EXAMINER